

*PRELIMINARY INVESTIGATION OF A VIDEO-BASED STIMULUS
PREFERENCE ASSESSMENT*

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Video clips may be an effective format for presenting complex stimuli in preference assessments. In this preliminary study, we evaluated the correspondence between preference hierarchies generated from preference assessments that included either toys or videos of the toys. The top-ranked item corresponded in both assessments for 5 of the 6 participants, and the top- and bottom-ranked items corresponded for 4 participants. The implications of these results for future research on video preference assessments are discussed.

Key words: autism, stimulus preference assessment, video

Stimulus preference assessments are an important component of intervention planning for individuals with disabilities. The most common and most accurate assessment methods involve the simultaneous presentation of multiple tangible stimuli from which an individual can choose. Unfortunately, some stimuli are too large to place on a table (e.g., a bicycle or television), and other potential reinforcers, such as social interactions and protracted activities (e.g., tickles or going for a walk), do not involve a tangible stimulus that can be presented during an assessment. To address these limitations, experimenters have evaluated the use of alternative stimulus formats (e.g., pictures, verbal choices, and printed words) in preference assessments. Alternative stimulus-presentation formats have two notable advantages. They may accommodate a wider array of potential reinforcers, and assessments that incorporate them may be briefer than those with tangible stimuli. Despite the potential advantages of using alternative stimuli in preference assessments, two variables may affect their validity: the individual's discrimination skills and whether access to the stimulus is provided after a selection response. For example, Clevenger and

Graff (2005) found that tangible and pictorial preference assessments generated similar preference hierarchies only for participants who demonstrated picture-object and object-picture matching skills. In addition, a number of studies have evaluated whether contingent access to the stimulus immediately after selection is necessary when using alternative stimulus presentations (e.g., Groskreutz & Graff, 2009; Hanley, Iwata, & Lindberg, 1999; Tessing, Napolitano, McAdam, DiCesare, & Axelrod, 2006). The results of these studies have been inconsistent. Due to procedural variations (e.g., whether discrimination skills were evaluated explicitly), it is difficult to draw conclusions about the conditions under which access is required to obtain valid preference hierarchies.

Videos have been used effectively in some choice procedures (e.g., vocational evaluations; Morgan, 2003), but have yet to be evaluated as an alternative stimulus-presentation format in preference assessments. Mechling and Moser (2010) evaluated preferences of individuals with autism for viewing self, adult, or peer video models; however, participants selected from an array of still photographs, and videos were incorporated only as the consequence for selection responses. As a presentation format, videos may have significant advantages over static alternative stimuli. Complex stimuli, such as social interactions and activities, can be difficult to depict because their salient features include

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movement and sound. Videos can portray these features and may allow complex stimuli to be represented more accurately, thereby expanding the number and scope of potential reinforcers that can be evaluated. Given the potential benefits of using videos in preference assessments and the lack of research in this area, we conducted this preliminary study to determine if preference assessments using videos of tangible stimuli would produce preference hierarchies similar to those generated by assessments using the tangible stimuli themselves.

METHOD

Participants, Setting, and Materials

Six children (3 to 5 years old) who had been diagnosed with autism participated in the study. To qualify, participants were required to demonstrate (a) choice making from two tangible stimuli and (b) video-to-object matching skills on a prestudy assessment. Participants were enrolled in an intensive behavioral preschool; sessions were conducted in a small research room in the school. Tangible and video preference assessments lasted approximately 15 and 30 min, respectively. The assessments were conducted on the same day, approximately 1 hr apart, to control for potential day-to-day changes in preference and changes in motivating operations following the first assessment. The 1-hr interval was based on the duration of the assessments and preschool schedule.

Six toys, each of which was accessible in the research room and able to be manipulated without assistance (e.g., cars, coloring books, puzzles), were selected for each participant. Two identical portable DVD players and 10-s video clips of an unfamiliar child playing with each stimulus were used for the video assessments. For each stimulus, two sets of videos were created. The first set included the child's entire body and was filmed in a natural preschool environment; the second set emphasized the salient features of the stimuli by focusing on the

child's hands manipulating the stimulus (i.e., point-of-view videos).

Response Measurement and Interobserver Agreement

For the tangible and video assessments, a selection response was defined as making physical contact with or pointing to a toy or DVD player, respectively. A selection percentage was calculated for each stimulus by dividing the number of times it was selected by the number of times it was available. Preference hierarchies were established by ranking the stimuli according to selection percentages. When two or more stimuli had identical selection percentages, they were assigned a score between the potential rankings.

A second observer independently collected data during all assessments. An agreement was defined as both observers recording the same participant selection on a trial. Interobserver agreement was calculated by dividing the number of agreements by the number of agreements plus disagreements and converting the ratio to a percentage. Mean agreement was 99% (range, 93% to 100%) for both the video and tangible assessments across participants.

Procedure

Matching assessment. An assessment was conducted to evaluate video-to-object matching skills. Participants were shown a 5-s video clip of an unfamiliar child engaging with a stimulus and presented with three tangible stimuli, one of which matched the stimulus in the clip. The experimenter then gave the instruction to "match." Correct responses, defined as touching the stimulus that was depicted in the video within 5 s, resulted in access to the stimulus for 15 s. Ten trials were conducted, with the comparison and sample stimuli varying unsystematically in position across each trial. A percentage correct score was calculated; at least 80% accuracy was required for further participation.

General procedure. Each participant was exposed to sets of two paired-stimulus preference

assessments (Fisher et al., 1992), one using videos and one using tangible items. Each assessment consisted of 30 total trials, and each stimulus was presented during 10 trials. The sequence of the video and tangible preference assessment was counterbalanced across participants (i.e., some participants were exposed to the video format first and others were exposed to the tangible format first).

Video paired-stimulus preference assessment. Immediately prior to the video preference assessment, the participant was exposed to each video clip paired with the corresponding stimulus. Each clip was played and paused with a still image on the screen. The participant was given 15-s access to the stimulus while the still image remained on the screen. During the preference assessment, two DVD players were centered 15 cm in front of the participant, spaced 30 cm apart. On each trial, the video on the left was played first followed by the video on the right. After a video ended, the DVD player was paused on the final frame so a still image remained. The experimenter gave the instruction, "pick one." Following a selection, the participant was given 15-s access to the stimulus. After the access period, the stimulus was removed and the next trial began.

Tangible paired-stimulus preference assessment. Immediately prior to the tangible preference assessment, the participant was exposed to the stimuli, with 15-s access to each. Procedures for the tangible assessment were identical to the video assessment, except that participants were presented with pairs of toys instead of videos.

Modifications for patterned responding. Natasha demonstrated a potential side bias during the first administration of the video assessment, selecting the video on the right on 26 of the 30 trials. Given that the video on the left was played first on every trial, it is possible that Natasha's responding was not controlled entirely by preference, but potentially was controlled by the video that was played most recently. To investigate whether this was a procedural artifact, a second set of assessments was

conducted in which the videos were played simultaneously and she was instructed to make a selection as soon as the videos began playing.

Evaluation of revised videos. Video clips were revised to evaluate whether we could improve discrimination and the validity of the video assessment. The revised videos focused on the model's hands manipulating the stimulus (i.e., a point-of-view video); procedures for the assessment with revised videos were identical to those outlined above. The revised videos were used in assessments with Arlo, Michelle, and Elliot.

Treatment Integrity

During all preference assessments, an independent observer collected data on treatment integrity (i.e., stimuli presented as indicated, 15-s access to the selected stimulus given, and the video on the left played first on each trial during the video assessments). Mean treatment integrity was 95% (range, 88% to 98%) and 91% (range, 83% to 100%) for the video and tangible assessments, respectively.

RESULTS AND DISCUSSION

Selection percentages for each item in the video and tangible preference assessments are depicted in Figure 1. We evaluated the correspondence between the rankings generated by the two formats for each item; correspondence was defined as rankings differing by no more than 0.5. Correlation coefficients (Pearson's r) were calculated as a measure of the strength of the correspondence between the two formats. Across participants, the number of ranking correspondences varied from one (Danny) to six (Arlo, revised videos), and correlation coefficients ranged from 0.35 (Natasha, modified procedures) to 0.97 (Arlo, revised videos). Correlations were statistically significant at the .05 level for four of the six participants (p values are shown in Figure 1). Although the number of correspondences varied, the top-ranked stimulus corresponded for five of the six participants. This result is important because the two assessments

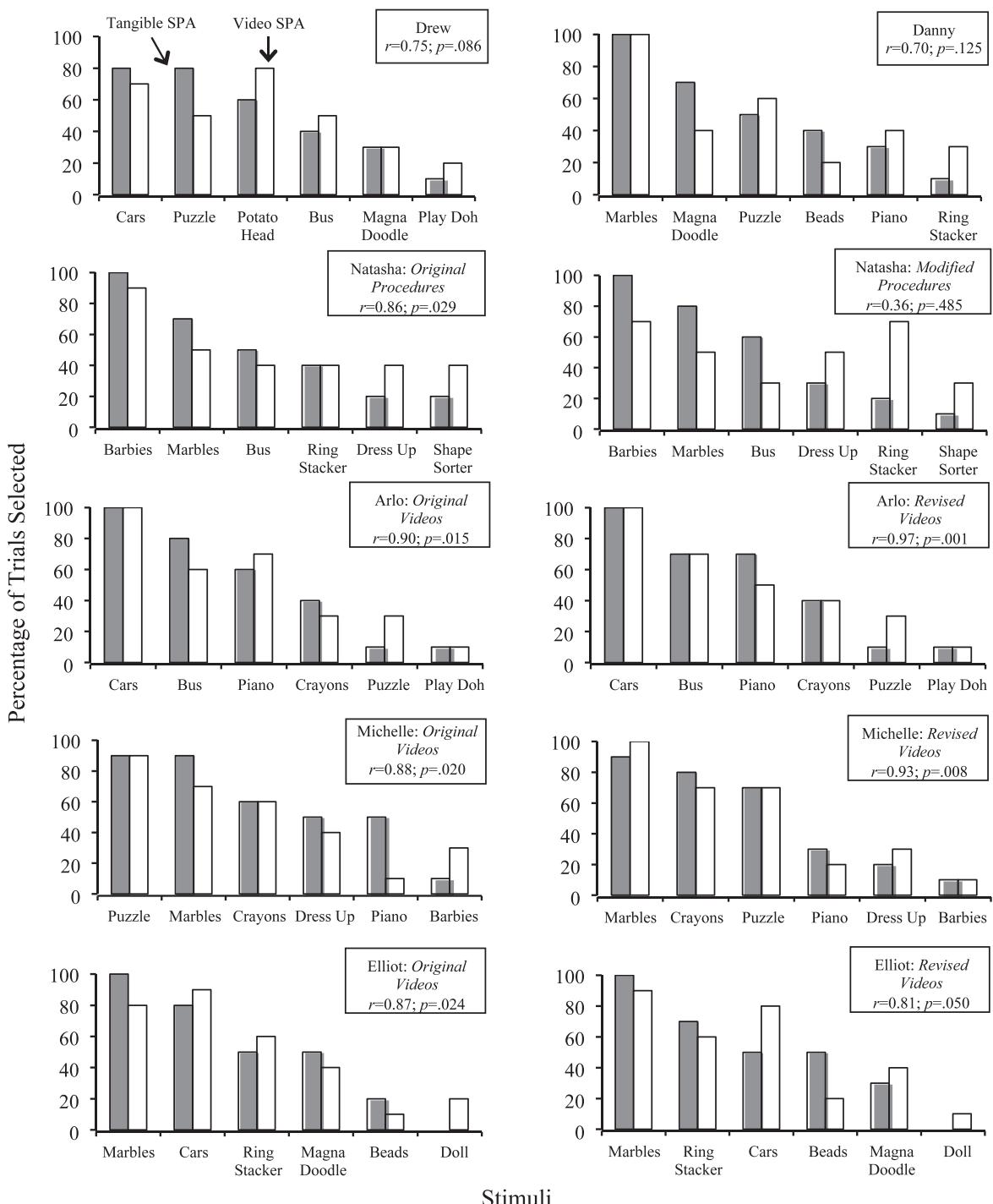


Figure 1. Preference assessment results; material and procedural modifications are noted where applicable. SPA = stimulus preference assessment.

identified the same potential reinforcer for these participants. Further, the assessments identified the same top- and bottom-ranked stimuli for four of the six participants.

Material and procedural modifications seemed to improve correspondence slightly; however, these results should be interpreted with caution. Modifications were introduced during the participants' second exposure to the video assessment. Thus, it is difficult to separate the effects of the modifications from the history of responding during the video format; additional research is needed to explore these effects. It is also possible that the observed differences were due to natural variations in the video format, because the test-retest reliability of the video format was not evaluated.

The video format has significant potential for evaluating preferences for social or complex stimuli. However, the present study focused on evaluating the validity of video assessments by comparing results with those from tangible assessments, and evaluated preference for toys instead of complex stimuli. To assess the clinical utility of the video format, future research should investigate its use with social or complex stimuli. In addition, a reinforcer assessment was not conducted to confirm that stimuli identified as high preference functioned as reinforcers. Previous research indicates that when tangible and pictorial preference assessments identified the same high-preference stimulus, the stimulus functioned as a reinforcer in subsequent reinforcer assessments (e.g., Clevenger & Graff, 2005). Nonetheless, future researchers should verify the validity of the video format via reinforcer assessments.

One potential explanation for the variability observed across participants may be that some participants did not have the necessary prerequisite skills. Although we assessed matching skills relevant to the video format, video clips were presented sequentially and may require delayed match-to-sample skills. Future research may examine this and other potential prerequisites for video assessments. Alternatively, the

variability may be attributed to momentary fluctuations in preference. The 1-hr interval between assessments may not have been sufficient to negate abolishing effects from stimulus exposure in the first assessment.

Before giving the instruction to make a selection, the researcher played the videos sequentially and paused them with a still image on the screen. This was done to increase the likelihood of participants making a selection, but these procedures make it difficult to identify whether participants responded to the video clip or the still image. Future research might investigate different ways of presenting video clips to clarify this ambiguity.

The duration of the video was longer than the tangible assessment. Also, the effort required to produce the video clips was substantially greater than the preparation for the tangible format. Although these are drawbacks of the current procedure, future research might manipulate parameters of the assessment, such as the duration of the video clips and the provision of an access period following selection responses, to evaluate whether it is possible to shorten the duration while maintaining validity.

The current preliminary investigation contributes to the preference assessment literature in two key ways. To date, this is the first study that has examined the video format to identify potential reinforcers. The results suggest that videos may be a viable method for representing stimuli for some individuals. Second, the results of this study may have important implications for representing complex stimuli. Given that these classes of potential reinforcers can be difficult to present in choice procedures and, as a result, may be excluded from preference assessments, continued research on the video format seems to be a worthwhile endeavor.

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